Chapter 7

Contracting, Vertical Coordination, and Price Discovery in Livestock Markets

USDA and other price reporting institutions acquire and disseminate large volumes of information on prices, product characteristics, and quantities traded in spot markets. These reports help markets work, because they provide unbiased information to aid market participants in making impending and future production and marketing decisions.

Contract prices are usually not publicly reported, and the effectiveness of spot markets can be eroded as contracting expands. The remaining sales may reflect a nonrepresentative set of transactions, making the reported prices an inaccurate reflection of activity, and market reports based on smaller samples can be less reliable. Further, some participants fear that thinning cash markets may make it easier for markets to be manipulated in favor of insiders. This weakening efficacy can spur further decline in the spot market. Spot market erosion may harm remaining spot sellers, who find it harder (more costly) to get buyers, and it can also harm contract sellers since marketing contract prices are frequently based on spot market prices.

From its earliest days, the USDA has provided agricultural market information to the public. In 1915, the first USDA market news report was issued at Hammond, LA, reporting prices and movement of strawberries. Prices for livestock were reported soon after in various formats, and a voluntary livestock price reporting system was in place at the USDA Agricultural Marketing Service (AMS) by 1946. Structural changes in the livestock industry after that generated concerns about price discovery and the value of voluntary price reporting, especially among feedlots and livestock producers. In particular, many observers believed that the use of contracts and vertical integration in supplying livestock led to poorer public market information because prices of these products were not reported as they moved through the system. In 1999, in response to these and other developments, congressional legislation—The Livestock Mandatory Price Reporting Act—required large meatpackers to report all livestock transaction prices to AMS. This section summarizes the policy issues surrounding livestock price reporting, links the issues to shifts of livestock away from spot markets and towards various forms of contracting, and reviews the 1999 legislation and some unresolved issues.

What Is Price Discovery, and Why Does the Government Provide Market Information?

USDA has frequently taken action to facilitate the functioning of spot markets in agricultural products, to speed up price discovery as well as to improve the reliability of reported prices. Early steps, aimed at improving the reliability of commercial transactions, initiated rules to protect sellers in

public markets from dishonest weighing and from financial insolvency of marketing firms and to ensure fair yardage charges and services.

Collection and dissemination of prices and other market information from many commodity and whole market areas facilitates price discovery. Under the Agricultural Marketing Act of 1946, AMS drew on voluntary price reports from market participants to publish "Market News," providing reports of price, quantities, and transaction characteristics for many commodities.

USDA also attempted to improve incentives in traditional spot market systems by introducing systems of quality and yield grade standards. Quality grades were first introduced in 1916 in support of more disaggregated and accurate price reporting, but were soon used independently to support public and private procurement specifications. Quality grades for livestock were introduced in 1923. They have been revised frequently, most recently in 1997, as USDA has tried to make them more precise indicators of carcass quality on which to base price. Yield grades provide a numerical five-point scale for evaluating yields of beef from a carcass, based on measurements of the thickness of fat at different points on the carcass. The quality and yield grade systems were developed in consultation with the industry, and USDA provides in-plant grading services, financed by a system of user fees paid by processors. Each system was designed to tie prices more closely to observable livestock characteristics, to provide more reliable indicators of market price movements, and to bolster producers' incentives to meet consumer demands.

What Went Wrong With the Traditional System?

Traditional livestock pricing systems became less effective at providing signals to producers, and in response some producer groups, packers, and retailers began to look for alternatives. As larger volumes of livestock began to move through alternative marketing channels, traditional systems also became less effective at orchestrating reliable price discovery—the process of assembling a series of prices in distinct transactions into useful market prices.

Demand for red meat began to slow and even decline in the mid-1970s, with corresponding declines in prices, in response to consumer changes in diet. This was in sharp contrast to the growing demand for marbled beef and the emphasis on family meals that had characterized the 1960s and early 1970s. Beef and pork producers did not quickly respond to the changes in consumer preferences, and demand strongly shifted toward poultry and fish (Purcell, 2002).

Ward (2001) asserts that the reason spot markets failed to respond to the changes in consumer demand, beginning in the 1970s, was that the markets did not provide accurate price signals to producers to develop products that consumers increasingly sought. He (along with others, such as Purcell) further argues that this failure drove processors and other intermediaries to develop alternative means of coordinating market supplies of livestock, such as vertical integration, alliances, grids, partnerships, producer-owned cooperatives, and contracts. Processors began addressing consumer concerns about fat in meat by trimming fat from carcasses, but they did so in the

absence of price incentives for farmers to produce lean carcasses. Without premiums and discounts for raising lean meat animals, producers had limited incentives to improve the quality of cattle delivered to market. There were similar issues with hogs, though not as pronounced as for beef, partly because live fat ("lard-type") hogs could more easily be visually identified from "lean-type" hogs.

Spot market livestock volumes appear to have continued to decline in recent years, although the available data are limited. We have already noted the dramatic shifts of market hogs out of spot markets and into contracts during the 1990s—spot markets handled only 17 percent of market hog transactions by 2000, down from 62 percent just 7 years earlier (Lawrence and Grimes, 2001). ERS estimates that 70 percent of hogs are currently sold under contracts (Martinez, 2002).

Several data sources also suggest that fed cattle sales shifted out of spot markets and into other marketing channels with less reliable public price reporting. USDA reports showed that "captive" supplies accounted for between 20 and 25 percent of steer and heifer slaughter, with no noticeable trend since 1979. Spot market volumes appeared to be holding steady. USDA defines "captive supplies" of cattle to be packer-fed cattle (those owned by the packer more than 14 days before delivery) and those committed to a packer under a forward contract or marketing agreement at least 14 days before slaughter. Complaints from producers that packers were manipulating the market have resurfaced recently. Some State legislatures responded by banning "captive" supplies and by regulating packer ownership of animals.

When USDA's Grain Inspection, Packers and Stockyards Administration (GIPSA) audited the 1999 captive reporting statistics from the four largest packers, the audit revealed that captive supplies had been underreported because of errors, misunderstandings, and inconsistencies in the way packers had reported the data (U.S. Department of Agriculture, 2002). Amended data showed that captive supplies accounted for 32 percent of cattle acquired by the four largest packers in 1999, and not 25 percent as originally reported. Moreover, when the improved process was repeated the following year, captive supplies jumped to 38 percent of the four largest packers' cattle acquisitions in 2000.

Thus, spot market volumes (those not reported as captive supplies) appeared to be considerably smaller than the prior unaudited data suggested, and they appeared to be declining sharply. The pattern reported in GIPSA statistics of recent sharp erosion in cash markets for fed cattle accords with results from a survey of cattle feeders reported by Schroeder, Lawrence, Ward, and Feuz (2002). Respondents moved 90 percent of their cattle through cash markets in 1996, but that fell sharply to 55 percent in 2001, and feeders expected to move only 36 percent of their cattle, on average, through cash markets in 2006.

Other analyses suggest a substantial decline in spot market fed cattle volumes in the 1990s, with a concomitant increase in cattle moving under alternative marketing arrangements. For example, Schroeder, Grunewald, and Ward (2002) reviewed trends in "additional movement" cattle in weekly reports by USDA's Agricultural Marketing Service (AMS)—representing cattle moving to packers that were not sold during the week on a negotiated

basis and hence were not captured in AMS pricing reports. The volume of such cattle rose sharply between 1995 and 2001, from 17.2 percent of all fed cattle marketings in the major feedlot States of Colorado, Kansas, Nebraska, and Texas in 1995 to 46 percent in 2001 (fig. 7-1). Those shifts suggest that, consistent with the revised GIPSA data, a large and increasing share of cattle is moving outside traditional spot market channels.

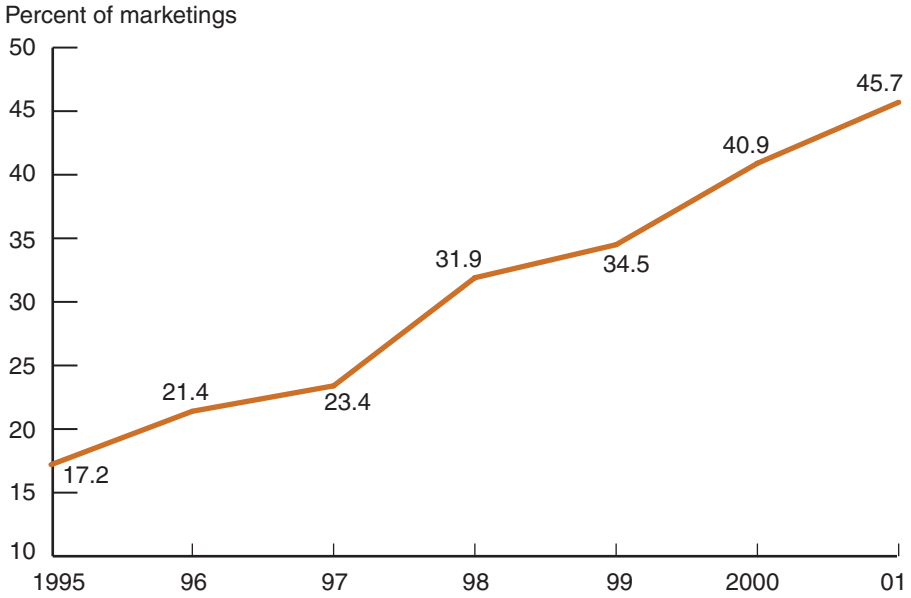
As contracts and vertical integration accounted for larger shares of livestock sales, fewer producers sold livestock through spot markets, and spot market volumes became substantially thinner. Schroeder, Grunewald, and Ward provide information here as well, summarized in figure 7-2. AMS releases daily reports from locations around the country summarizing prices and volumes of livestock transactions.[1] During the 1990s, their reports became far less likely to quote a price for fed cattle. In the early 1990s about 10 percent of daily local fed cattle cash market prices for Kansas and Texas were not reported because of insufficient trading volume—that is, not enough trades were reported for AMS to report a market price. By 2000, daily cash trades had thinned so much that AMS was not reporting prices in 60 percent of daily reports from those States.

As the transactions underlying price reports became fewer, two distinct reporting problems ensued, reliability and bias. Because reported prices were based on fewer and fewer transactions, they became less reliable indicators of the central tendencies of actual transactions prices. Next, to the extent that there were systematic differences in quality between livestock priced in spot markets and those moving through alternative marketing arrangements, spot market price reports were a biased representation of typical prices in actual transactions. Koontz (1999) compared transactions prices on over 108,000 pens of cattle marketed between June 1986 and June 1993 with voluntary AMS reports, and found that voluntary price reporting appeared to be inefficient

[1] See *http://www.ams.usda.gov/marketnews.htm* for all the AMS Market News reports.

Figure 7-1

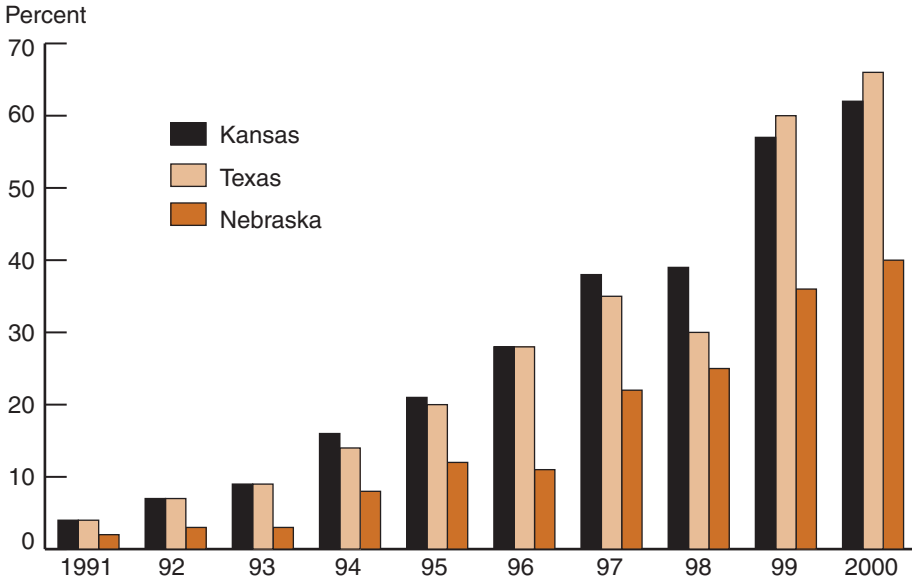
"Additional movement" fed cattle marketings in Colorado, Kansas, Nebraska, and Texas



Source: Schroeder, Grunewald, and Ward (2002).

Figure 7-2

Percent of business days fed cattle cash price was not reported, 1991-2000



Source: Schroeder, Grunewald, and Ward (2002).

during times when prices were changing substantially. In particular, the price range reported by AMS lagged behind actual transactions prices when prices were rising, and also reacted too slowly when prices were falling appreciably. Koontz concluded that packers and feedlots were reporting prices selectively when prices were moving against them, biasing voluntary price reports.

The Start of Mandatory Price Reporting

Price reporting for most commodities remains voluntary. However, in response to producer concerns, the Livestock Mandatory Price Reporting Act of 1999 (LMPR), published in the Federal Register on December 1, 2000 (65 FR 75464), requires the posting of prices paid to producers for their animals and for meat under certain circumstances. The Act aimed to "make the reporting on market information mandatory, (in order to) facilitate price discovery, make the market open, and provide all market participants with market information that can be easily understood." Dan Glickman, Secretary of Agriculture at the time of passage, noted as he announced the program:

> We need to ensure that small farmers and ranchers have a full and fair opportunity to compete in an increasingly concentrated agricultural economy. This new mandatory price reporting program will help producers by making the market more transparent, giving them better information about what's happening in the marketplace.

The LMPR established a mandatory program of reporting information regarding the marketing of cattle, swine, lambs, and products of these animals. As implemented, packers who annually slaughter an average of 125,000 cattle or 100,000 swine, or slaughter or process an average of 75,000 lambs, are required to report selected details of all transactions

involving purchases of livestock to AMS. All transactions involving domestic and export sales of boxed beef cuts are included, along with applicable branded products, sales of boxed lamb cuts, including applicable branded products, and all sales of lamb carcasses. Importers are required to report the sales of all imported boxed lamb cuts, and voluntary reporting continues for smaller entities. This program is intended to provide information on pricing, contracting for purchase, and supply and demand conditions for livestock, livestock production, and livestock products that can be readily understood by producers, packers, and other market participants. The LMPR preempted similar prior legislation in five States—Iowa, Minnesota, Missouri, Nebraska, and South Dakota. State legislation brought on intense debate, amid concerns that the legislation would disadvantage firms within affected states by raising their costs and putting them at a bidding disadvantage compared with firms in States that did not have to report prices (Wachenheim and DeVuyst, 2001; Wilson, Dahl, and Johnson, 1999).

Mandatory price reporting for livestock was designed to improve information available to producers to facilitate the price discovery process. After passage of the LMPR, AMS added a large number of new reports and increased the information in the reports, resulting in a great deal of new price reporting information. Confidentiality concerns complicated the production of early AMS reports.[2] Upon initiating the LMPR program in April 2001, USDA aimed to preserve confidentiality by following a "3/60" reporting guideline. Data would only be published if at least three reporting entities had supplied it, with no single entity responsible for 60 percent or more of the data underlying a statistic. The rules resulted in substantial withholding of data from the public. According to Schroeder, Grunewald, and Ward, between April 2, 2001 and August 17, 2001, before the confidentiality rules were modified, 81 percent of regional and national daily afternoon direct-slaughter negotiated purchase prices were not reported because of confidentiality restrictions.

[2] See *http://www.ams.usda.gov/lsmn-pubs/mpr/rule.htm* for more information about AMS implementation of the mandatory price reporting rule.

AMS responded by developing new "3/70/20" confidentiality guidelines. These specified that for the 60 days prior to a report, at least three entities needed to provide data at least half of the time, no single entity could provide more than 70 percent of the data for a report, and no single entity could be the sole reporting source for an individual report more than 20 percent of the time. With the modified confidentiality guidelines, all reports of regional and national daily direct-negotiated purchases were made without confidentiality breaches. Before modification of the guidelines, only 24 percent of regional fed cattle morning reports were released; reporting frequency for the morning reports rose to 77 percent after modification (Schroeder, Grunewald, and Ward).

Confidentiality guidelines present a difficult challenge for USDA. Note that LMPR imposes the reporting requirement on packers. Cattle slaughter is so concentrated—in many regions, only three or four packers may be active—that confidentiality guidelines designed to protect the information of individual reporting entities may often apply, restricting the release of market news. The issue is of less concern in hog slaughter, where the four largest packers handled 57 percent of hog purchases in 2000. We should note that confidentiality restrictions do not solely protect information providers, even

when that is the primary intent. Market information systems that detail actual individual transactions prices can abet collusive agreements, especially in concentrated industries. For example, suppose that cattle buyers agreed among themselves to refrain from competing aggressively and aimed to set artificially low prices for cattle. A system that reported extremely detailed price information would then ensure that any colluder attempting to secretly renege on the agreement would be found out, and the information system would thereby support the collusive agreement restricting competition.[3]

[3] See Posner (2001) for a general description of the issue, and Wachenheim and DeVuyst (2001) for an application to mandatory price reporting.

We have only limited information on the effects of livestock mandatory price reporting, which was initiated in 2001. Effective implementation took several more months while USDA tailored the confidentiality restrictions and adjusted processes to compile reported prices into accurate and useful price reports.

AMS daily and weekly reports now specify price ranges for a wide variety of transactions. Based on early data, it appears that spot market livestock sales may have stabilized after a long period of decline. Data from AMS reports indicate that negotiated (spot market) live and carcass sales have remained relatively stable and well above 50 percent of the market through the summer of 2003. While spot market hog sales fell steadily through the 1990s to 17 percent of sales in 2001, the decline ended and the spot market maintained its market share in 2002.

Schroeder, Lawrence, Ward, and Feuz (2002) surveyed cattle feeders' views of LMPR. Few producer respondents felt that mandatory price reporting had enhanced their ability to negotiate better prices with buyers, and there was clearly no consensus on whether LMPR had benefited the beef industry—opinions on that issue varied widely. A large majority of respondents strongly agreed with the statement that LMPR had not been as beneficial as they expected. Specifically, respondents were given a scale for answers, with 1 corresponding to "strongly disagree" and 9 corresponding to "strongly agree." Thirty-eight percent of respondents chose 9, while 37 percent picked 7 or 8, also indicating strong agreement.

It is important to place the responses in context. Prior to passage of LMPR, many producers argued that cash market prices were systematically lower than prices offered for captive supplies, although academic research had found only modest differences. Producers may have expected LMPR to show a large gap between cash and contract prices, and to lead to a narrowing of that gap. But data collected under LMPR does not reveal differences in prices received between contracts and negotiated (spot market) transactions. If price discrimination was not occurring in cattle markets, LMPR could hardly be expected to correct it.

Spot prices in competitive markets are relevant only to the extent that they provide information about the value of products moving through the whole system. LMPR addresses facets of the issue of the range and reliability of reported transactions prices as vehicles for discovering market prices. That may not be the most important element in the decline of spot markets for livestock. If spot market pricing systems do not provide producers with useful quality signals, then we are likely to see a continuing shift to more explicit forms of vertical coordination— through contracts and packer ownership—to ensure more consistent livestock and meat qualities.